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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/272,809	03/19/1999	JOHN CLARK LAGARIAS	23070-943	6118
22434	7590	06/29/2007		
BEYER WEAVER LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			EXAMINER HINES, JANA A	
			ART UNIT 1645	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/272,809	<b>Applicant(s)</b> LAGARIAS, JOHN CLARK	
	<b>Examiner</b> Ja-Na Hines	<b>Art Unit</b> 1645	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-5, 7-19 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 7-19 and 22-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 19, 2007 has been entered.

### ***Amendment Entry***

2. The amendment filed April 19, 2007 has been entered. Claims 1 and 8 have been amended. Claims 2, 6 and 20-21 have been cancelled. Claims 1, 3-5, 7-19 and 22-32 are under consideration in this office action.

### ***Priority***

3. Applicants' have asserted that priority should be given to instant application 09/272,809 because of the amendment to the specification made January 28, 2003.

#### **CROSS-REFERENCE TO RELATED APPLICATIONS**

This is related and claims priority to USSN 08/904,871, filed August 1, 1997, now issued as U.S. Patent No. 6,046,014 (also published as WO 98/04700 and USSN 60/023,217, filed on August 2, 1996, both of which are incorporated herein by reference for all purposes.

However this statement is not sufficient to provide priority to 08/904,871 (US Patent 6,046,014) for the following reasons. The appearance of related subject matter does not make 09/272,809 related to 08/904,871 nor does it establish

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priority between the cases. If applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If applicant desires the benefit under 35 U.S.C. 120 based upon a previously filed application, applicant must file a petition for an unintentionally delayed benefit claim under 37 CFR 1.78(a)(3) or (a)(6). The petition must be accompanied by: (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted); (2) a surcharge under 37 CFR 1.17(t); and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450

Furthermore, 08/904,871 does not claim priority to 60/023,217 or WO98/04700. At best, US Patent 6,046,014 lists provisional 60/023,217 as related application data. Therefore there is no clear association or establishment of priority between 08/904,871, 60/023,217 or WO98/04700 contrary to applicants' amendment. Provisional application 60/023,217 fails to provide priority to or have any relationship with either 08/904,871 or 09/272,809.

Furthermore, WO 98/04700 is entitled Nucleic Acids Encoding Metal Uptake Transporters and Their Uses; there is no relationship between WO 98/04700 and

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any of 08/904,871, US Patent 6,046,014 or 60/023,217. Therefore, applicants' above amendment to the specification does not establish priority to instant application 09/272,809 contrary to applicants' assertion.

### ***Specification***

4. The amendment filed January 28, 2003 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

This is related and claims priority to USSN 08/904,871, filed August 1, 1997, now issued as U.S. Patent No. 6,046,014 (also published as WO 98/04700 [which is a continuation in part of] and USSN 60/023,217, filed on August 2, 1996, both of which are incorporated herein by reference for all purposes.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Withdrawal of Objections and Rejections***

5. The following objections and rejections have been withdrawn in view of applicants' amendments and arguments:

- a) the objection of claim 8;
- b) the new rejection of claims 1,3-5, 7-19 and 22-32; and
- c) the rejection of claims ,3-5, 7-19 and 22-32 under 35 U.S.C. 112, second paragraph.

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***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 3-5, 7-19 and 22-32 have been considered but are moot in view of the new ground(s) of rejection.

***New Grounds of Rejection***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 7, 9-19, 22, 25 and 27-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Lagarias et al., WO 98/05944 (published 12 February 1998)

Claim 1 is drawn to a composition comprising: an apophytochrome polypeptide consisting of between about 190 amino acids and about 400 amino acids, which apophytochrome polypeptide comprises a lyase domain, wherein said apophytochrome polypeptide is selected from the group consisting of a plant apophytochrome polypeptide, an algal apophytochrome polypeptide, and a cyanobacterial apophytochrome polypeptide; and a bilin. Claims 3 and 22 are drawn to the polypeptide consisting of about 390 amino acids. Claims 7 and 25 are drawn to the polypeptide being from *Synechocystis*. Claim 9 is drawn to the polypeptide being covalently linked to said bilin to form a fluorescent adduct.

Claims 10 and 27 are drawn to the bilin being a tetrapyrrole. Claim 11 and 28 are drawn to the bilin being phycoerythrobilin. Claim 12 is drawn to the fluorescent adduct being linked to a biomolecule. Claims 13 and 29 are drawn to the biomolecule being selected from the group consisting of a protein, a carbohydrate, a lipid, and a nucleic acid. Claims 14 and 30 are drawn to the biomolecule being a nucleic acid. Claims 15 and 31 are drawn to the biomolecule being a protein. Claims 16 and 32 are drawn to the protein being an antibody.

Claim 17 is drawn to a method of detecting the presence of a biomolecule in a sample, the method comprising: providing a sample comprising a biomolecule linked to a fluorescent adduct consisting of a bilin and an apophytochrome polypeptide of between about 190 amino acids and about 400 amino acids, which apophytochrome polypeptide comprises a lyase domain, wherein said apophytochrome polypeptide is selected from the group consisting of a plant apophytochrome polypeptide, an algal apophytochrome polypeptide, and a cyanobacterial apophytochrome polypeptide; contacting the sample with light which causes the fluorescent adduct to emit light; and detecting the emitted light, thereby detecting the presence of the biomolecule. Claim 18 is drawn to contacting the sample with light includes contacting the sample with light having a wavelength of about 570 nm. Claim 19 is drawn to detecting the emitted light includes detecting light having a wavelength of about 590 nm.

Lagarias et al., teach truncated apoproteins consisting of the apoprotein N-terminal subsequence sufficient for lyase activity wherein the N-terminal sequence is less than about 400 amino acids (page 4, lines 30-24). Lagarias et

al., teach the domain refers to the apoprotein N-terminal subsequence sufficient for lyase activity (page 7, lines 11-18). Lagarias et al., teach this domain consist of less than about 400 amino acids, 390 or 350 amino acids (page 7, line 16). Lagarias et al., teach apoproteins and bilins forming fluorescent phytofluors (page 13, lines 27-30). Lagarias et al., teach the terms apoprotein, apophytochrome or apoprotein polypeptide are equivalent terms (page 6, lines 23-25). The apoprotein is derived from plants, green alga, or cyanobacteria (page 3, lines 12-15). Lagarias et al., teach the polypeptides comprise an apoprotein component and bilin that is tetrapyrrole or phycoerythrobilin (page 4, lines 5-10). Figure 10 illustrates a polypeptide from *Synechocystis* species. Lagarias et al., teach fluorescent adducts covalently linked to label moiety (page 4, lines 25-27). Lagarias et al., teach the fluorescent adduct joined to the moiety by attachment to the bilin (page 5, lines 4-8). The moiety or biomolecule is any composition such as a biomolecule, including proteins, carbohydrates, lipids, antibody members of a binding pair and nucleic acids (pages 4-5, lines 28-3).

Lagarias et al., teach methods for detecting the presence of a biomolecule in a sample comprising a biomolecule linked to a fluorescent adduct consisting of an apoprotein and a bilin chromophore and contacting the sample with light which causes the fluorescent adduct to emit light and detecting the emitted light thereby detecting the presence of the biomolecule (page 5, lines 13-24). Lagarias et al., teach the sample is contacted with light having a wavelength of about 570nm or about 590nm thereby allowing detection of the biomolecule (page 5, lines 20-24).

Therefore, Lagarias et al., teach the invention of claims 1, 3, 7, 9-19, 22, 25, and 27-32.



***Claim Rejections - 35 USC § 102***

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Marshall and Neale submitted to the EMBL Data Library March 1995.

Claim 1 is drawn to a composition comprising: an apophytochrome polypeptide consisting of between about 190 amino acids and about 400 amino acids, which apophytochrome polypeptide comprises a lyase domain, wherein said apophytochrome polypeptide is selected from the group consisting of a plant apophytochrome polypeptide, an algal apophytochrome polypeptide, and a cyanobacterial apophytochrome polypeptide; and a bilin.

Marshall and Neale teach an apoprotein phytochrome fragment from Douglas Fir. The phytochromobilin of Marshall and Neale has 368 amino acids. Marshall and Neale teach a feature of the phytochromobilin is the presence of the phytochromobilin the covalent binding site. The phytochrome protein has accession number T09496 but was renamed Q40917.

Therefore Marshall and Neale teach the invention of claim 1.

***Conclusion***

9. No claims allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-

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272-0859. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Jeffery Siew, can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ja-Na Hines  
June 19, 2007

  
JEFFREY SIEW  
SUPERVISORY PATENT EXAMINER